

CALIFORNIA ENERGY COMMISSION

1516 NINTH STREET
SACRAMENTO, CA 95814-5512



DATE: April 12, 2005

TO: Interested Parties

FROM: Nancy Tronaas, Compliance Project Manager

**SUBJECT: Bottle Rock Geothermal Power Plant (79-AFC-4C)
Staff Analysis of Petition to Extend Environmental
Monitoring Program during Suspended Operations**

On January 18, 2005, the California Energy Commission received a petition from the Bottle Rock Power Corporation (BRPC) to amend the Decision for the Bottle Rock Geothermal Power Project. The Commission certified the 55 MW Department of Water Resources (DWR) Bottle Rock Geothermal Power Plant in 1980, and operations to produce electricity for the State Water Project commenced in 1985. In 1990, DWR discontinued operating the facility due to a lack of steam. In 1993, the Commission approved an amendment to the Decision that reduced the monitoring and reporting requirements in consideration of the plant's shutdown status.

In 2001, the Commission approved the transfer of the power plant from DWR to the Bottle Rock Power Corporation, the latter assuming the responsibilities and obligations imposed by the conditions of certification of the power plant, including those that apply to the current suspension of power plant operations. The associated steamfield remains under the jurisdiction of Lake County pursuant to Lake County Amended Use Permit 85-27.

The BRPC petition requests an extension of the current environmental monitoring program for suspended operations of the power plant for an additional 18 months from the date of approval by the Energy Commission. This time extension will allow BRPC to remedy the impediments that have hindered BRPC's ability to file a petition with the Commission to restart the power plant.

Energy Commission staff reviewed the petition and assessed the impacts of this proposal on environmental quality, public health and safety. Staff proposes revisions to existing Biological Resources Conditions of Certification for suspended operations #5-2, 5-3(a-j) and 5-4, and also proposes administrative revisions to of Air Quality, Cultural Resources, Water Quality/Water Resources, Safety, and Noise Conditions of Certification for suspended operations to replace all references to "DWR" with "project owner" for consistency with the Commission's current administrative format.

It is Energy Commission staff's opinion that, with the implementation of revised conditions, the project will remain in compliance with applicable laws, ordinances, regulations, and standards and that the proposed modifications will not result in a significant adverse direct or cumulative impact to the environment (Title 20, California Code of Regulations, Section 1769).

The amendment petition has been posted on the Energy Commission's webpage at www.energy.ca.gov/sitingcases. Staff's analysis is attached for your information and review. Staff's analysis and the Order (if the amendment is approved) also will be posted on the webpage. Energy Commission staff intends to recommend approval of the petition at the May 11, 2005 Business Meeting of the Energy Commission. If you have comments on this proposed modification, please submit them to me at the address below prior to May 11, 2005:

Nancy Tronaas
Compliance Project Manager
California Energy Commission
1516 9th Street, MS 2000
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Comments may be submitted by fax to (916) 654-3882, or by e-mail to ntronaas@energy.state.ca.us. If you have any questions, please contact Nancy Tronaas, Compliance Project Manager, at (916) 654-3864.

Attachment

Bottle Rock Geothermal Power Project (79-AFC-4C)
Petition to Extend Environmental Monitoring Program
for Suspended Operations
Biological Resources Staff Analysis
Prepared by Marc Sazaki
March 23, 2005

SETTING

The Bottle Rock Geothermal Power Plant is located in the Mayacmas Mountains approximately 90 miles north of San Francisco, about 22 miles east of Cloverdale, and 2.5 miles northwest of Cobb Mountain in the Lake County portion of the Geysers Known Geothermal Resources Area. The topography includes both flat and gently rolling to steep hills characterized by an nonurbanized and sparsely populated landscape. Steam wells, above ground steam pipelines, and geothermal power plants are the principal human induced activity affecting wildlife and habitat in the area.

APPLICABLE LAWS, ORDINANCES, REGULATIONS, and STANDARDS (LORS)

- Public Resources Code, Section 25003, specifies "...in planning for future electrical generating and related transmission facilities...environmental protection,... should be considered."
- Public Resources Code, Section 25527, states that "...the commission shall give the greatest consideration to the need for protecting areas of critical environmental concern, including, but not limited to, unique and irreplaceable scientific, scenic, and educational wildlife habitats; ... and areas under consideration by the state or the United States for wilderness, or wildlife and game reserves.
- Native Plant Protection Act of 1977, Fish and Game Code Section 1900-1904 state that "The intent of the Legislature and the purpose of this chapter is to preserve, protect and enhance endangered or rare native plants of this state.", and; Section 1911 states that "All state departments and agencies shall, in consultation with the department, utilize their authority in furtherance of the purposes of this chapter by carrying out programs for the conservation of endangered or rare native plants. Such programs include, but are not limited to, the identification, delineation and protection of habitat critical to the continued survival of endangered or rare native plants."
- Fully Protected Species, Fish and Game Code Section 3511 (b)(1) American peregrine falcon (*Falco peregrinus anatum*); and, Section 4700(b)(5) ring-tailed cat (genus *Bassariscus*).
- California Endangered Species Act of 1970, Fish and Game Code, Section 2050-2055.

- U.S. Endangered Species Act of 1973 and implementing regulations.

ANALYSIS

The Bottle Rock power plant went off line in November 1990 and its owner at the time (California Department of Water Resources) petitioned to suspend operations at the power plant and steam field in January 1991. Subsequently, the Conditions of Certification were modified to monitor conditions potentially affecting biological resources during the suspension period. During 1991 through 2000, monitoring of mitigation effectiveness as well as potential project-related negative effects on biological resources, as described in annual compliance monitoring reports, did not raise Energy Commission staff or other agency concern.

Annual compliance monitoring reports from 2001 to the present, indicate either some of the monitoring was not fully carried out, or was not reported. In spite of this lack of recent information, it appears that boron deposition and uptake by vegetation near the power plant has declined to a very low level, but has also shown a slight rise for the last year reported (2001). The boron deposition monitoring can reasonably be suspended until power plant operations are restarted. Thereafter, the need for continued monitoring, including the use of aerial photography, can be evaluated based on operational deposition levels as they are determined.

Surface water and ground water sampling results have not been especially noteworthy in terms of being potentially harmful to biota in the area. Because of the sensitivity of the aquatic environment in The Geysers KGRA, and the potential for impacts due to maintenance activities, monitoring should continue at a reduced frequency compared to that which was done in the prior suspension period. Unless surface water sampling shows consistent and prolonged extreme measurements that could potentially negatively affect aquatic biota, invertebrate sampling is not necessary. Surface water and ground water monitoring should be ramped up when ground disturbing activities take place as the power plant and ancillary facilities are refurbished for full operations.

Nest box use by secondary hole nesting birds continues to be measurably successful. Although recent maintenance failures have reduced the availability of opportunities for local birds, new nest boxes have been acquired, but remain to be installed. This should be done and the boxes maintained annually during the suspension. Wildlife watering basins should also be maintained during the suspension, but monitoring for species use of these habitat improvement projects can be reduced to a biennial mode.

Deer use in the black oak and chaparral study areas as determined by pellet counts, has steadily declined to a relatively low amount per acre and leveled off in the five or so years prior to 2001. In the chaparral, the low use trend could be the result of this plant community aging into a decadent stage. A parallel, but lower trend in the black oak area, is subject to conjecture at this time. Continued monitoring of these study areas is

not considered necessary. In addition, vegetation and bird monitoring in these areas can be discontinued because the habitat has become mature and relatively stable. As such, no dramatic change in the flora or bird fauna is anticipated.

Soil erosion monitoring should be continued annually to detect any related problems so that corrective action can be taken to minimize the potential for impacts within associated drainages. Monitoring wildlife use of the revegetated cut and fill slopes will not be necessary, so long as acceptable restoration efforts are undertaken.

CONCLUSIONS AND RECOMMENDATIONS

Staff concludes that the Bottle Rock Geothermal Power Plant can comply with all state, federal, and local laws, ordinances, regulations, and standards, if mitigation and monitoring requirements are fully implemented.

Staff recommends certain monitoring efforts established for the previous suspension and imposed pursuant to Energy Commission Order No. 97-1203-1(a), be revised, continued, or eliminated for the new suspension period, and others be reevaluated and reinstituted as necessary when a petition is filed to restart the power plant. Staff further recommends approval of the proposed amendment.

PROPOSED REVISIONS TO EXISTING BIOLOGY CONDITIONS OF CERTIFICATION

Except for the headings “**Biological Resources**”, “Verification”, and “5.B - Requirements” below, deleted text is shown in ~~strike through~~, added text is underlined.

Biological Resources

5.B - Requirements

Original Condition 5.1.a. through 5.1.h. are suspended, original Condition 5.2 remains in effect. ~~The new Conditions, 5-3.a., 5-3.e. through 5-3.h. and 5-4 are suspended. Conditions 5-3.b. through 5-3.d. and 5-3.ih. through 5-3.j., as modified and set forth below, shall remain in effect substitute for the original Conditions 5.1.a. through 5.1.h. and for the requirements contained in the original Biological Resources Mitigation and Implementation Plan.~~

- 5-2. One year prior to power plant deactivation, ~~DWR the project owner will~~ shall include in the decommissioning plan a biological resources element identifying mitigation and compensation measures.

Verification: ~~DWR The project owner~~ will submit the biological resources element of the decommissioning plan to the CEC CPM ~~and the CDFG~~ for a determination in consultation with CDFG of adequacy and acceptability.

- ~~5-3.a. The DWR shall continue annual soil/duff monitoring and leaf tissue analysis to determine boron levels until the DWR and CEC determine that no further contamination or cumulative impacts remain.~~

~~Verification: The DWR shall submit to the CEC CPM by December 15, 1993, and of each subsequent year, an annual monitoring report which contains the results and a discussion of the year's monitoring and verifies compliance with the condition.~~

- 5-3.b. The DWR project owner ~~will~~ shall continue surface water sampling at the following 5 sites: Kelsey Creek immediately upstream of the confluence with Alder Creek; Kelsey Creek 500 feet downstream of its confluence with High Valley Creek; Alder Creek immediately upstream of its confluence with Kelsey Creek; High Valley Creek immediately upstream of its confluence with Kelsey Creek; and Kelsey Creek near Kelseyville.

Sampling shall be conducted ~~four~~ twice times a year, in January, April, ~~July~~, and October.

Protocol: Each surface water sample shall be analyzed for boron, sodium, sulfate, calcium-magnesium hardness, Ph, alkalinity, settleable solids, non-filterable residue, turbidity and specific electrical conductivity.

~~Additionally, during April, July and October, the DWR will collect and identify bottom dwelling organisms from at least one square meter of stream bed at each site and make special trace metal determinations for copper, iron, manganese, lead and zinc.~~

Verification: The DWR project owner shall submit to the CEC CPM by December 15, 1993 and each subsequent year, an annual monitoring report which contains include the results and a discussion of the year's monitoring in the BRMMSR and verifies compliance with the condition. (See 5-3.i. below)

- 5-3.c. The DWR project owner shall continue groundwater sampling at the following five sites: Nance Spring, Union Oil Spring, Coleman Well, Jadiker Spring and Francisco well.

Sampling shall be conducted ~~four~~ twice times a year, in January, April, ~~July~~ and October.

Protocol: Each groundwater sample shall be analyzed for boron, sodium, sulfate, calcium-magnesium hardness, pH, alkalinity, non-filterable residue, specific electrical conductivity, copper, iron, manganese, lead and zinc.

~~Verification: The DWR project owner shall submit to the CEC CPM by December 15, 1993 and each subsequent year, an annual monitoring report which contains include the results and a discussion of the year's monitoring in the BRMMSR and verifies compliance with the condition. (See 5-3.i. below)~~

- 5-3.d. The DWR project owner shall replace and maintain the nest boxes as originally prescribed, and maintain wildlife water basins in working condition. Wildlife use of these habitat improvement projects will be monitored ~~annually~~ biennially using the same methodology that has been used in the past and thoroughly described in the BRMMSP. (See 5-3.i. below)

~~Verification: The DWR project owner shall submit to the CEC CPM by December 15, 1993 and each subsequent year, an annual monitoring report which contains include the results and a discussion of the ~~year's~~ biennial monitoring in the BRMMSR and verifies compliance with the condition. (See 5-3.i. below)~~

- ~~5-3.e. Deer pellet group counts shall be sampled by the DWR every 6 months, using the same methodology as in past sampling. (See 5-3.i. below)~~

~~Verification: The DWR shall submit to the CEC CPM by December 15, 1993, and each subsequent year, a report which contains the results and a discussion of the monitoring and verifies compliance with the condition.~~

- ~~5-3.f. Vegetation (quantity and species composition) monitoring shall be continued by the DWR on the two 25-acre study plots twice in the next ten years.~~

~~Protocol: Once during the first five year interval and once during the second five year interval. The same methodology will be used as in the past for monitoring of these plots. (See 5-3.i. below)~~

~~Verification: The DWR shall submit a report to the CEC CPM by December 15th of the year of the monitoring action, which contains the results and a discussion of the monitoring and verifies compliance with the condition.~~

- ~~5-3.g. Bird monitoring in the black oak and chaparral study areas shall be conducted three times in the next 10 years by the DWR. This monitoring will use the same methodology (See 5-3.i. below) as past monitoring of these study areas. Monitoring will be spread over the ten year period.~~

~~Verification: The DWR shall submit to the CEC CPM by December 15th of the year of the monitoring action, a report which contains the results and a discussion of the monitoring and verifies compliance with the condition.~~

- 5-3.h. ~~DWR~~The project owner shall monitor erosion on an on-going basis during the rainy season. Inspections shall include all cut and fill slopes and other disturbed areas. Erosion problems shall be immediately repaired.

If temporary repairs are necessary during the rainy season, ~~DWR~~the project owner shall complete permanent repairs to those erosion problems by October 10th of each year.

Verification: The ~~DWR~~project owner shall submit to the CEC CPM by August 15th of each year an annual report which includes results of erosion monitoring when erosion problems are discovered. This report will describe the problems discussed and action taken to correct the problems.

During years when no erosion problems occur, and no corrective action is required, a brief discussion may be included and submitted in the December 15th annual report. (See 5-3.i. below)

- 5-3.i. A Biological Resources Mitigation and Monitoring and Mitigation Status Report (BRMMSR) shall be prepared to provide the results of the previous year's monitoring. This report will be submitted by December 15th each year. The ~~1993~~ report will collate and summarize all monitoring results including methodologies used to satisfy conditions 5-3.a.b. through 5-3.h.d. The project owner shall include in the BRMMSR appropriate maps of suitable scale with a detailed discussion of the current status of all mitigation and monitoring actions.

Verification: The ~~DWR~~ project owner shall submit to the CEC CPM by December 15, ~~1993,~~ and of each ~~subsequent~~ year, an annual BRMMSR which verifies compliance with the Biological Resource Conditions of Certification.

Upon reasonable notice the CEC CPM, Lake County staff, the Regional Water Quality Control Board staff, and the California Department of Fish and Game (CDFG) staff, shall be granted access for inspections.

- 5-3.j. If any specific mitigation measure or monitoring program is determined to be ineffective, or if the CEC CPM staff receives any submittal, complaints, or other information from the ~~DWR~~ project owner, other agencies, or the public, that indicates one or more significant impacts are occurring on the leasehold subject to CEC jurisdiction, ~~DWR~~ the project owner and the CEC ~~staff~~ CPM shall meet to determine what further measures shall be taken to correct or reverse these impacts.

Verification: The ~~DWR~~ project owner in consultation with CEC CPM will

take action to correct the problem. If the problem cannot be resolved by staff, the compliance monitoring dispute resolution process will be utilized.

~~5-4. Monitoring of wildlife use of the revegetated cut and fill slopes shall be initiated and conducted by the DWR three times, spread throughout the next 10 years. This effort will include: birds; deer; reptiles; small mammals; and rabbits/hares. DWR shall develop a methodology and a proposed schedule for these monitoring studies.~~

~~Verification: DWR shall submit the methodology and a proposed schedule for these monitoring studies to the CEC CPM for acceptability, 60 days prior to the start of monitoring during the first monitoring year.~~

~~The CEC CPM will respond as to the acceptability of the methodology and the monitoring schedule within 30 days of receipt of the submittal.~~

~~Filing of the subsequent three reports and all status reports will be included in the December 15 annual BRMMR (5-3.i.).~~

Bottle Rock Geothermal Power Project (79-AFC-4C)
Petition to Extend Environmental Monitoring Program
for Suspended Operations
Administrative Corrections
Prepared by Nancy Tronaas
March 23, 2005

The following proposed revisions to the Conditions of Certification for suspended operations of the Bottle Rock Geothermal Power Project will replace references to the former project owner, DWR (California Department of Water Resources) with the term "project owner", "CEC staff" with "CEC CPM" to reflect current administrative terminology. Deleted text is in ~~striketrough~~, and new text is underlined.

Air Quality

Suspend original Conditions 1-1 through 1-6. Issue Conditions 1-7 and 1-8.

- 1-7. ~~DWR~~ Project owner shall participate in Geysers' Air Monitoring Program (GAMP) III for the life of the program.

Verification: ~~DWR~~ Project owner shall submit in the Annual Compliance Report a statement describing ~~DWR's~~ project owner's participation in GAMP.

- 1-8. During the suspension period, ~~DWR~~ Project owner shall maintain all existing Authorities to Construct (ATCs) and Permits to Operate (PTOs) required under Lake County Air Quality Management District (LCAQMD) regulations.

Verification: ~~DWR~~ Project owner shall submit in the Annual Compliance Report to the CEC CPM appropriate confirmation from the LCAQMD that all ATCs and PTOs are current and active under the terms and Conditions of LCAQMD Rules and Regulations.

~~DWR~~ Project owner shall also include in this report a statement regarding any complaints and actions of resolution for air quality for the ~~DWR~~ Bottle Rock facility.

For the duration of the suspension and any time when the plant is operating, ~~DWR~~ project owner shall submit an Annual Compliance Report for each calendar year no later than February 15th, of the year following the reporting year.

Public Health

Suspend original Conditions 2-1 through 2-9. No new Conditions issued.

Socioeconomic/Aesthetics

Suspend original Condition 3-1. Original Condition 3-2 shall remain in effect.

Cultural Resources

Suspend original Conditions 4-1 through 4-4. Modify Condition 4-5 to read as follows:

- 4-5. ~~DWR~~ Project owner shall ensure that the existing fence on the north side of site CA-LAK-609 is maintained.

Verification: A statement verifying compliance shall be provided in each Annual Compliance Report filed with the CEC CPM.

Water Quality/Water Resources

Issue Conditions 6-5 and 6-6. Modify Conditions 6-1 through 6-4 to read as follows:

- 6-1. ~~DWR~~ Project owner shall, during the period of suspension, utilize no new surface water as the source for any maintenance or other necessary activity without first notifying and obtaining the required authorization from the appropriate federal, state, county or local agencies.

Verification: 90 days prior to proposed use of surface water, ~~DWR~~ the project owner shall file statements with the CEC CPM, the Water Resources Control Board, the Central Valley Regional Water Quality Control Board (CVRWQCB), and all other agencies having regulating jurisdiction over such water use, identifying the source(s), estimated amounts of use, and the method of obtaining such water.

Additionally, ~~DWR~~ the project owner shall provide the CEC CPM copies of all agency responses and permits necessary for surface water use requests.

- 6-2. ~~DWR~~ Project owner shall maintain on file the Spill Contingency and Containment Plan (SCCP) originally required by the CVRWQCB.

Verification: ~~DWR~~ Project owner shall notify the CEC CPM of the file location of the SCCP. ~~DWR~~ Project owner shall comply with all applicable monitoring conditions described in CVRWQCB's Waste Discharge Requirement Order No. 76-202 and any amendments thereto.

- 6-3. ~~DWR~~ Project owner shall adequately maintain the previously constructed impermeable spill collection-containment system to preclude discharges of toxic-hazardous waste and materials from the power plant pad.

Verification: ~~DWR~~ Project owner shall submit annually to the CVRWQCB and to the CEC CPM, via the Annual Compliance Report, a record of maintenance and corrective measures to the spill containment system.

- 6-4. ~~DWR~~ Project owner shall during the period of suspension, maintain and operate the domestic waste water septic tank, holding tank, pumps and control system as originally designed to discharge the limited amounts of effluent into the steam suppliers condensate reinjection system.

Verification: ~~DWR~~ Project owner shall submit annually to the CVRWQCB and to the CEC CPM via the Annual Compliance Report, a record of maintenance and operation of the domestic waste water disposal system.

- 6-5. ~~DWR~~ Project owner shall maintain quarterly records of the volume of water pumped from the on-site supply well.

Verification: ~~DWR~~ Project owner shall maintain on site for the CEC CPM to review upon request, supply records of water pumpage from the on-site water well.

- 6-6. To minimize the effects of contaminated storm water runoff discharges from the paved plant site areas to surface waters, ~~DWR~~ project owner shall discharge all such waters to the condensate reinjection well(s), limited only by the capacity of the existing sump pumps or the capacity of the reinjection well(s) to accept such discharges.

Note: During high rainfall periods when the runoff from the paved plant area is discharging to the High Valley Creek watershed, the impacts of such discharges will be minimized due to the diluting effects of runoff from the remainder of the watershed.

Verification: ~~DWR~~ Project owner shall submit annually to the CEC CPM a record of maintenance and operation of the drainage sump pump discharge to the injection well(s).

Geotechnical/Seismic Hazards

Suspend original Conditions 7-1 through 7-3. No new Conditions issued.

Soils

Suspend original Conditions 8-1, 8-2, and 8--3. Original Condition 8-4 shall remain in effect. Condition 5-3.h. in the Biological Resources Section, addresses soil erosion issues.

Civil Engineering

Suspend original Conditions 9-1 through 9-4. Original Condition 9-5 remains in effect. No new Conditions issued.

Structural Engineering

Suspend original Conditions 10-1 through 10-6. No new Conditions issued.

Solid Waste Management

Suspend original Conditions 11-2, 11-4, and 11-6. Conditions 11-1, 11-3 and 11-5 remain in effect.

Safety

Suspend original Conditions 12-1 through 12-7. Modify original Conditions 12-8, 12-9 and add new Condition 12-10 to read as follows:

- 12-8. ~~DWR~~ Project owner shall continue to abide by an approved accident prevention program in accordance with the provisions of Section 3203 et seq. of Title 8, CCR. (These sections include chemical handling & storage and provisions for hazardous materials and airborne contaminant exposure based on Section 5155, Title 8, CCR.)

Verification: ~~DWR~~ Project owner shall notify the CEC CPM of any changes to the approved accident prevention program and provide verification of California Occupational Safety and Health Administration's (Cal/OSHA) approval of said changes.

- 12-9. ~~DWR~~ Project owner shall request California Department of Occupational Safety and Health Administration (Cal/DOSHA) to conduct on-site safety inspections during the suspension of operations immediately following any complaint.

Verification: During the suspension, DWR shall notify the CEC CPM in writing in the event of a violation that could involve DOSHA action, and the necessary corrective action.

- 12-10. During the suspension period, ~~DWR~~ project owner shall remove from the plant site, all chemicals, solvents and lubricants, except those essential to maintain the plant, and those only in reasonably required quantities.

Verification: Within 90 days of the Commission Order Approving Modified and Reduced Environmental Monitoring, ~~DWR~~ project owner shall submit the following to the CEC CPM:

- (1) a list of all hazardous chemicals and the quantities that are to remain on site during the suspension period, and

(2) the signature of the responsible Plant Manager certifying compliance with this condition.

Within 90 days of receipt of the list and the Plant Manager's verification, the CEC ~~staff~~ CPM will conduct a site visit.

Noise

Suspend original Conditions 16-2 and 16-3, modify Condition 16-1 to read as follows:

- 16-1. ~~DWR~~ Project owner shall comply with Lake County's noise ordinance, which is 55 dBA Ld and 45 dBA Ln at any point beyond the property line of the source. In the event the Lake County Air Quality Management District (LCAQMD) or ~~DWR~~ the project owner receives public complaints of any noise, ~~DWR~~ project owner and the LCAQMD (if requested by the complainant) agree to promptly conduct an investigation to determine the extent of the problem. ~~DWR~~ Project owner shall take reasonable measures to resolve the complaints.

Protocol: Within 10 days of a request by the LCAQMD or the CEC CPM, ~~DWR~~ project owner shall conduct noise surveys at the sensitive receptors registering complaints and at the facility property line nearest the complaining receptors. Surveys shall be conducted, when possible, under circumstances similar to those when the complaints were perceived. The survey should be reported in terms of L_{eq} and L_z at levels $x=10, 50$, and 90 .

Verification: ~~DWR~~ Project owner shall promptly forward to the LCAQMD the survey results, the mitigation measures applied to resolve the problem and the results of these efforts. LCAQMD shall advise the CEC CPM of any continuing noncompliance conditions.